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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,123	03/31/2004	Gary W. Atkinson	Atkinson 3-1-28	9196

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PHILADELPHIA, PA 19102

EXAMINER

MERED, HABTE

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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07/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,123

Applicant(s)

ATKINSON ET AL.

Examiner

Habte Mered

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/18/07</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to communication filed on 3/31/2004.
2. Claims 1-18 are pending. Claims 1 and 10 are the base independent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over B. T. Doshi et al. (B. T. Doshi et al, "Optical Network Design and Restoration", Bell Labs Technical Journal, January-March 1999), hereinafter referred to as Doshi in view of Shinomiya et al (US 7, 188, 280), hereinafter referred to as Shinomiya.

Doshi teaches optical mesh network design and restoration.

2. Regarding **claim 1**, Doshi discloses a method, comprising:
receiving one or more demands for service in a mesh network (**See Figure 3**), which network comprises a plurality of nodes interconnected by a plurality of links (**See Table 1, Page 66**); and mapping each of the one or more demands onto a primary path and a restoration path in the network to generate at least one path plan for the one or more demands in the network (**See Algorithm L on page 71, items 1-3**), wherein the at least one path plan is generated as a function of (a) one or more cost criteria associated with the at least one path plan (**See Algorithm L on page 71, item 3 and see Tables IX**

and X) and (b) cross-connection criterion associated with the path plan (**See Table IV and Column 1 on page 77**).

Doshi fails to expressly disclose a failure-related cross-connection criterion associated with the path plan.

Shinomiya teaches protection route design method in a communication network.

Shinomiya teaches a failure-related cross-connection criterion associated with the path plan. (**See Column 4:22-27 and Column 6:62-67 and Column 8:49 and Column 10:45-57**)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's method a failure-related cross-connection criterion associated with the path plan. The motivation to establish such a criteria is that it helps to decrease the number of failure notification messages and consequently helps reducing restoration time as illustrated in Shinomiya Column 4:22-27.

3. Regarding **claim 10**, Doshi discloses a path manager for a mesh communications network (**From the discussion on page 63, Column 1, it is clear that a central network topology database is maintained and hence some form of network manager has to maintain the database and can effectively be considered a path manager**), the manager comprising one or more computing elements, wherein the manager is adapted to: receive one or more demands for service in a mesh network (**See Figure 3**), which network comprises a plurality of nodes interconnected by a plurality of links (**See Table 1, Page 66**); and map each of the one or more demands onto a primary path and a restoration path in the network to generate at least one path

plan for the one or more demands in the network (**See Algorithm L on page 71, items 1-3**), wherein the at least one path plan is generated as a function of (a) one or more cost criteria associated with the at least one path plan (**See Algorithm L on page 71, item 3 and see Tables IX and X**) and (b) cross-connection criterion associated with the path plan (**See Table IV and Column 1 on page 77**).

Doshi fails to expressly disclose a failure-related cross-connection criterion associated with the path plan.

Shinomiya teaches a failure-related cross-connection criterion associated with the path plan. (**See Column 4:22-27 and Column 6:62-67 and Column 8:49 and Column 10:45-57**)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's method a failure-related cross-connection criterion associated with the path plan. The motivation to establish such a criteria is that it helps to decrease the number of failure notification messages and consequently helps reducing restoration time as illustrated in Shinomiya Column 4:22-27.

4. Regarding **claims 2 and 11**, Doshi discloses a method wherein the at least one path plan is generated by: calculating a first set of one or more path plans that satisfy the one or more cost criteria; calculating a second set of one or more path plans that satisfy the failure-related cross-connection criterion; determining whether the first and second sets have any path plans in common; and if not, then, until the first and second sets have at least one path plan in common, relaxing the one or more cost criteria and recalculating the first set. (**See Page 72, section under heading "Joint Optimization:**

Distributed Computation” the first two paragraphs essentially suggest what the limitation requires)

5. Regarding **claims 3 and 12**, Doshi discloses a method wherein the failure-related cross-connection criterion specifies a maximum number of cross-connections that are changed in any node in the network following a failure in the network. **(See Table IV and see page 75 section under cross connect reduction)**

6. Regarding **claims 4 and 13**, Doshi discloses a method, wherein the one or more cost criteria are a function of at least one of sharing degree, administrative weight, link utilization, and available capacity. **(See Algorithm L on page 71, item 3 and see Tables IX and X)**

7. Regarding **claims 5 and 14**, Doshi discloses a method, wherein the at least one path is generated by:

(a) calculating a set of node-disjoint path pairs for the one or more demands based on the failure-related cross-connection criterion, wherein a node-disjoint path pair is calculated for each demand; **(See Page 75, 2nd Column, last 2 paragraphs)**

Co) identifying primary and restoration paths for each node-disjoint path pair in the set to generate a path plan for the one or more demands; **(See page 63, 1st column, 2nd to 4th paragraphs)**

(c) determining whether the path plan satisfies the failure-related cross-connection criterion; **(See Page 75, 2nd Column, last 2 paragraphs)**

(d) saving, when the path plan satisfies the failure-related cross-connection criterion, the path plan; **(it has to save it in order to build the network topology)**

(e) repeating steps (a)-(d) to generate two or more path plans that satisfy the failure-related cross-connection criterion; **(See Appendix A – Steps 2-4 done in a loop on page 81) and**

(f) selecting one of the path plans based on the one or more cost criteria. **(See Appendix A – step 4 – on page 81)**

8. Regarding **claims 6 and 15**, Doshi discloses a method, wherein, when the path plan satisfies the failure-related cross-connection criterion, steps (b)-(d) are repeated with a constraint that excludes each and every saved path plan. **(See Appendix A steps 2-4 on page 81)**

9. Regarding **claims 7 and 16**, Doshi discloses a method, wherein, steps (b)-(d) are repeated only until the path plan fails the failure-related cross-connection criterion. **(See Page 75, 2nd Column, last 2 paragraphs and the steps in Appendix A).**

10. Regarding **claims 8 and 17**, Doshi discloses a method, wherein, when the path plan fails the failure-related cross-connection criterion, steps (a)-(d) are repeated with a constraint that excludes each set of node-disjoint paths. **(See Page 75, 2nd Column, last 2 paragraphs and the steps in Appendix A).**

11. Regarding **claims 9 and 18**, Doshi discloses a method. wherein, when calculating a set of node-disjoint path pairs for the one or more demands per step (a) fails to find a feasible solution, the failure-related cross-connection criterion is relaxed.**(See Page 80, first column, the last two paragraphs effectively teach what this limitation requires by introducing scalability in the algorithm)**

Conclusion

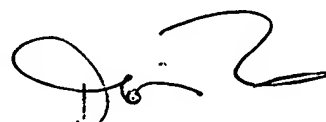
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046.

The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H. To can be reached on 571 272 7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HM
07-08-2007



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